

SOLVING CONSTRAINT SATISFACTION PROBLEMS USING VARIABLE-  
RANGE HOPPING

**ABSTRACT**

A method for solving a constraint satisfaction  
5 problem (CSP) includes choosing a first state  
corresponding to a first set of values of a set of  
variables, and selecting a hop distance within a state  
space of the variables responsively to a random distance  
selection criterion. A second state corresponding to a  
10 second set of the values of the variables is selected,  
such that the second state is separated from the first  
state by the hop distance. Constraint costs of the first  
and second states are compared. If the cost of the  
second state is lower than the cost of the first state,  
15 the first state is redefined to correspond to the second  
set of the values of the variables. These steps are  
repeated until a solution of the CSP is found.